



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/010,846	12/05/2001	Manjunath Narayanaswamy	ADAPP207	7426
25920	7590	11/03/2003		
MARTINE & PENILLA, LLP 710 LAKEWAY DRIVE SUITE 170 SUNNYVALE, CA 94085				
			EXAMINER DINH, NGOC V.	
			ART UNIT 2187	PAPER NUMBER 2

DATE MAILED: 11/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

224

# Office Action Summary

Application No.

10/010,846

Applicant(s)

NARAYANASWAMY ET AL.

Examiner

NGOC V DINH

Art Unit

2187

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**  
***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1,3 are rejected under 35 U.S.C.102 (e) as being anticipated by Korst PN 6,415,328

**1. As per claims 1-4, 7-10:**

Korst teaches a method for distributing read commands to disks associated with a redundant array of inexpensive disks (RAID) system [col. 8, lines 10-15], comprising:  
establishing a first and second counter, the first counter associated with a first disk drive, the second counter associated with a second disk drive [col. 17-18; col. 19, line 1-40];  
receiving a command from an operating system; determining if the received command is a read command; examining the first and second counters if the received command is the read command col. 5, line 64 to col.6 line 6], the examining including, determining which of the first and second counters is a lower value counter or if the first and second counters are of equal value [col. 4, lines 39-45; col. 20, 18-30]; selecting a drive associated with the lower value counter or if the counters; are of equal value selecting a first drive [col. 20, lines 18-30; col. 4, lines 39-45]; directing the read command to the drive associated with the lower value counter; providing a multithread environment for receiving multiple commands from the operating system; directing the read command to the drive associated with the lower value counter, includes: sending the read command to a drive queue of the drive associated with the lower value counter; the drive queue holds 256 commands; reporting to an operating system that the read command has been processed [col. 4, lines 22-45; col. 15 line 1 to col. 16 line 65; col. 17 line 1 to col. 18 line 40]; Korst further teaches generating an SCSI interrupt [col. 8, lines 34-40].

Korst implicitly teaches incrementing the lower value counter or the first counter if counters are of equal value [col. 3, lines 58-65; col. 4, lines 40-45]. This is because when a read request is directed into either a high/low or equal load disk drives, the counter associated

with the disk drive in which the read request being directed into must be increased so the scheduler in Korst computer system [col. 5, line 64 to col. 6 line 5] can monitor the workload of each disk drive in order to direct the next read request to the lowest load disk drive.

Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Korst PN 5,440,7096,415,328, in view of Jai Menon, Jeff Riegel and Jim Wyllie 1995 IEEE 1063-6390

**2. As per claims 5-6:**

Korst teaches the claimed limitations as mentioned above.

Korst does not teach the RAID system is a software and hardware RAID implementation. Menon-Jeff Riegel-Jim Wyllie teaches the RAID system is a software and hardware RAID implementation [abstract; page 411-412].

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include Menon-Jeff Riegel-Jim Wyllie's teaching into Korst computer system in order to improve RAID performance and reliability [Menon-Jeff Riegel-Jim Wyllie; introduction section].

**3. As per claims 11-20:**

Korst and Menon-Jeff Riegel-Jim Wyllie teach the claimed method in claims 1-10, therefore Korst and Menon-Jeff Riegel-Jim Wyllie teach the computer readable media and an apparatus in claims 11-20.

***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Zakai et al PN 6,415,372 discloses balancing workload and counter.
- b. Blumenau et al PN 6,438,595 discloses load balancing with counters assigned for each storage port.
- c. Shank et al PN 6,145,028 discloses enhanced multi-pathing to an array of storage devices.

Art Unit: 2187

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc Dinh whose telephone number is (703) 305-3023. The examiner can normally be reached on Monday-Friday 8:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald A. Sparks, can be reached on (703) 308-1756. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

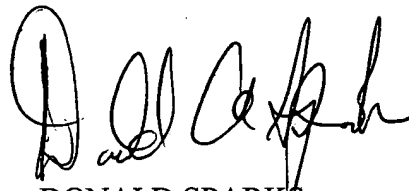


NGOC DINH

Patent Examiner

ART UNIT 2187

October 23, 2003



DONALD SPARKS

Supervisory Patent Examiner

Technology Center 2100